COMPUTER NETWORK SOFTWARE INSTALLATION

UNIT CODE: 0612 551 05A

Relationship to Occupational Standards

This unit addresses the Unit of Competency: Install Computer Network Software

Unit Duration: 200 Hours

Unit Description

This unit covers the competencies required to install computer network software. It involves performing computer software installation, testing computer network software and conducting computer network software user training.

Summary of Learning Outcomes

LEARNING OUTCOMES	DURATION (HOURS)
1. Conduct Network Software Simulation	30
2. Perform Computer Network Software Installation	30
3. Test Computer Network Software	30
4. Conduct Computer Network Software User Training	50
5. Monitor Computer Network Software Performance	60
TOTAL	**200**

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Learning Outcomes, Content and Suggested Assessment Methods

Learning Outcome	Content	Suggested Assessment Methods
1. Conduct Network Software Simulation .	1.1 Computer network software requirements 1.1.1 Introduction to computer software 1.1.2 Computer network software 1.1.2.1 Network protocols and services 1.1.2.2 Operating systems 1.1.2.3 Network management software 1.1.2.4 Remote desktop software	

	1.1.2.5 Network backup and recovery software 1.1.2.6 VoIP software 1.2 Introduction to Installation and configuration of Computer network simulation Software 1.2.1 Types of Computer network simulation Software 1.2.1.1 Cisco (packet tracer) 1.2.1.2 Graphical Network Simulator 1.2.1.3 Wire shark 1.2.2 Uses of network simulators 1.2.3 Best practices in Installation and configuration of Computer network simulation Software 1.3 Basic Network Simulations activities 1.3.1 Simple Network Design 1.3.2 Troubleshooting Network Issues 1.3.3 Configuring Basic Protocols	
2. Perform Computer Network software installation	2.1 Network operating system Installation 2.1.1 Introduction to computer Network operating system 2.1.2 Functions of a NOS 2.1.2.1 File Sharing 2.1.2.2 Print Sharing 2.1.2.3 Resource Management 2.1.2.4 Security 2.1.2.5 Network Management 2.1.3 Features of Using a NOS 2.1.3.1 User authentication and authorization: 2.1.3.2 File and directory services 2.1.3.3 Network security 2.1.3.4 Backup and recovery	• Practical test • Project • Portfolio of evidence • Oral questioning • Interviews • Third party report • Written tests • Case study

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	2.1.3.5 Remote management 2.1.3.6 Monitoring and reporting 2.1.4 Benefits of Using a NOS 2.1.4.1 Improved network performance 2.1.4.2 Enhanced security 2.1.4.3 Simplified network management 2.1.4.4 Increased collaboration 2.1.4.5 Cost savings 2.2 Network monitoring and management tools 2.2.1 Network management tools 2.2.1.1 FortiManager 2.2.1.2 OpManager Plus 2.2.1.3 Azure Virtual 2.2.1.4 WANQuantum Spark Security Management Portal 2.2.2 Network monitoring tools 2.2.2.1 Paessler PRTG Network Monitor 2.2.2.2 Progress WhatsUp Gold 2.2.2.3 Nagios XILogicMonitor 2.2.2.4 SolarWinds Network 2.2.2.5 Performance Monitor 2.2.2.6 Wireshark 2.2.2.7 Nagios 2.2.2.8 Zabbix 2.2.2.9 Cisco Prime Infrastructure 2.3 Network monitoring tools configuration 2.3.1 Types of network monitoring tools 2.3.1.1 Traffic monitoring tools 2.3.1.2 Performance monitoring tools	

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	2.3.1.3 Security monitoring tools 2.3.2 Network monitoring tools configuration strategies	
3. Test Computer Network Software	3.1 Network Software Testing 3.1.1 Meaning and importance of software testing. 3.1.2 Types of computer network Software testing performed as per user requirements 3.1.2.1 Exploratory testing 3.1.2.2 Test case design 3.1.2.3 Defect reporting 3.1.2.4 Performance testing 3.1.2.5 Security testing 3.1.2.6 User acceptance testing 3.1.2.7 Functionality test 3.1.3 Continuous Improvement of Computer Network Software 3.1.3.1 Regular Reviews 3.1.3.2 Security Awareness 3.1.3.3 Training Incident Response Plan 3.1.3.4 Proactive Monitoring 3.2 Performing Corrective Actions on Computer Network Software 3.2.1 Corrective actions 3.2.2 Patch Management 3.2.3 Configuration Management 3.2.4 Security Measures 3.2.5 Network Troubleshooting 3.2.6 Performance Optimization 3.2.7 Backup and Recovery 3.2.8 Continuous Improvement of Computer Network Software	• Practical test • Project • Portfolio of evidence • Oral questioning • Interviews • Third party report • Written tests • Case study

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	3.2.8.1 Regular Reviews 3.2.8.2 Security Awareness 3.2.8.3 Training Incident Response Plan 3.2.8.4 Proactive Monitoring 3.3 Introduction to Computer software functionality test report 3.3.1 Steps in conducting Computer software functionality test 3.3.2 Computer software Functional testing types 3.3.2.1 Unit testing 3.3.2.2 Smoke testing 3.3.2.3 User acceptance 3.3.2.4 Regression testing 3.3.2.5 Localization testing	
4. Conduct Computer Network software user training	4.1 User skill gap 4.1.1 Meaning of skill gap in computer networks 4.1.2 Identification of skill gap in computer networks 4.2 User training manuals 4.2.1 Definition of training manual 4.2.2 Types of computer network training manuals 4.2.2.1 Cisco network training manual 4.2.2.2 Microsoft certified network engineer associates 4.2.2.3 Linux network training manual 4.3 Network user training 4.3.1 Key Concepts Network user training 4.3.1.1 Basic network concepts and terminologies	• Practical test • Project • Portfolio of evidence • Oral questioning • Interviews • Third party report • Written tests • Case study • Written tests • Case study

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	4.3.1.2 Connecting to the networks 4.3.1.3 Network security best practices 4.3.1.4 Resources access and file sharing 4.3.1.5 Performance optimization 4.4 Training reports 4.4.1 Meaning and identification of computer networks training reports. 4.4.2 Types of computer networks training reports 4.4.2.1 Training evaluation report 4.4.2.2 Training completion report	
5. Monitor computer network software performance	5.1 Real-time network monitoring 5.1.1 Types of network software performance real –time monitoring. 5.1.1.1 SNMP 5.1.1.2 Packet sniffers 5.1.1.3 Performance monitoring tools 5.1.1.4 Flow-based analytics 5.2 Bandwidth and Throughput analysis 5.2.1 Definition of Bandwidth and Throughput 5.2.2 Factors Affecting Throughput analysis 5.2.2.1 Network Congestion 5.2.2.2 Network Congestion 5.2.2.3 Latency 5.2.2.4 Packet Loss 5.2.2.5 Protocol Overhead 5.2.2.6 Hardware Limitations 5.2.3 Tools for measuring and optimizing throughput and bandwidth	○ Practical test ○ Project ○ Portfolio of evidence ○ Oral questioning ○ Interviews ○ Third party report ○ Written tests ○ Case study ○ Written tests ○ Case study

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	5.2.4 Network performance monitoring tools 5.2.4.1 Speed test applications 5.2.4.2 Quality of service 5.2.4.3 Traffic analysis 5.2.4.4 Bandwidth management and control tools 5.2.4.5 Predictive analytics and capacity planning tools 5.2.5 Best practices for managing bandwidth and throughput 5.3 Network Alerts and notifications 5.3.1 Types of Network Alerts and notifications 5.3.1.1 Security alerts 5.3.1.2 Performance alerts 5.3.1.3 Hardware alerts 5.3.1.4 Configuration alerts	

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Suggested Methods of delivery

- Role playing
- Viewing of related videos
- Group discussions.
- Instructor led facilitation using active learning strategies.
- Projects.
- Demonstrations.
- Site visits.

Recommended Resources for 25 Trainees

S/No.	Category/Item	Description/ Specifications	Quantity	Recommended Ratio (Trainee: Item)
A	**Learning Materials**			
1.	Textbooks		13 pcs	2:1

2.	Installation manuals			
3.	Flip Charts			
4.	PowerPoint presentations	For trainer's use		
B	**Learning Facilities & infrastructure**			
5.	Lecture/theory room		1	25:1
6.	Laboratory		1	25:1
C	**Consumable materials**			
7.	Printing papers		1 ream	1:20
8.	Toners/Cartridges		2 pcs	13:1
9.	Assorted colour of whiteboard markers			
D	**Tools and Equipment**			
10.	Computers		25 pcs	1:1
11.	Projector		1 pc	25:1
12.	Flash drives		25 pairs	1:1
13.	External CD/DVD drives		13 pcs	2:1

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